

5 a non-realtime encoder coupled to the non-realtime content source and
6 configured to encode [for encoding] the non-realtime content into encoded non-realtime
7 content;

8 a realtime content source [for providing] configured to provide realtime [video
9 and audio] content;

10 a realtime encoder coupled to the realtime content source and configured to
11 encode [for encoding] the realtime [video and audio] content into encoded realtime content
12 [video and audio];

13 a remultiplexer operatively coupled to the non-realtime encoder and the realtime
14 encoder and configured to repacketize [for repacketizing] the encoded non-realtime content
15 and the encoded realtime content [video and audio] into transport packets suitable for
16 transmission in a transport stream; and

17 a re-timestamp unit coupled to the remultiplexer [for providing] and configured
18 to provide timestamps to be applied to the transport packets in order to synchronize the
19 realtime and non-realtime contents [content therein].

1 2. (Amended) The apparatus of claim 1, where the apparatus is located within
2 a head-end of a cable distribution system.

1 3. (Amended) The apparatus of claim 1, further comprising:
2 a [common] clock unit [for providing] configured to provide a [common]
3 clock signal to the re-timestamp unit and to generate [re-timestamping unit and for
4 generating] a clock stream to be transmitted along with the transport stream to [set-top] a
5 plurality of terminals.

1 4. (Amended) The apparatus of claim 1, further comprising:
2 a rate control unit [for determining] configured to determine an encoding rate
3 for the non-realtime content and [for providing] to provide the determined encoding rate for
4 the non-realtime content to the non-realtime encoder.

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1 5. (Amended) The apparatus of claim 4, where [the rate control unit
2 **predetermines said**] encoding rate for the non-realtime content is determined based at least in
3 part on [according to] an output rate of [a final] the transport stream [which includes both
4 **the realtime and non-realtime content]**.

1 6. (Amended) The apparatus of claim 4, where the rate control unit
2 **[predetermines] determines** an encoding rate for the realtime content based at least in part on
3 [according to] an output rate of [a final] the transport stream [which includes both the
4 **realtime and non-realtime content]**.

1 7. (New) The apparatus of claim 1, wherein the realtime content includes video
2 and audio contents.

1 8. (New) The apparatus of claim 1, wherein the non-realtime content includes
2 guide data.

1 9. (New) The apparatus of claim 7, wherein the realtime encoder includes
2 a video encoder configured to encode the realtime video content, and
3 an audio encoder configured to encode the realtime audio content.

1 10. (New) The apparatus of claim 5, wherein the encoding rate for the non-
2 realtime content is further determined based on a maximum bit rate anticipated for the encoded
3 realtime content.

1 11. (New) The apparatus of claim 1, wherein the timestamps provided by the
2 re-timestamp unit replace timestamps generated by the realtime and non-realtime encoders.

1 12. (New) The apparatus of claim 1, further comprising:

2 a slice combiner coupled to the realtime and non-realtime encoders and the
3 remultiplexer, the slice combiner configured to combine slices of encoded realtime content
4 with slices of encoded non-realtime content.

1 13. (New) The apparatus of claim 1, wherein realtime and non-realtime
2 contents intended to be displayed in a single frame are re-timestamped by the re-timestamp
3 unit such that the contents are decoded and presented in the same frame.

1 14. (New) A method for encoding realtime and non-realtime contents,
2 comprising:
3 encoding realtime content to generate encoded realtime content;
4 encoding non-realtime content to generate encoded non-realtime content;
5 repacketizing the encoded realtime content and the encoded non-realtime
6 content into transport packets suitable for transmission in a transport stream; and
7 re-timestamping the transport packets with new timestamps in order to
8 synchronize the realtime and non-realtime contents.

1 15. (New) The method of claim 14, further comprising:
2 generating the new timestamps based on a common clock signal.

1 16. (New) The method of claim 14, further comprising:
2 controlling a bit rate for the encoded non-realtime content based in part on a bit
3 rate for the transport stream.

1 17. (New) The method of claim 16, wherein the bit rate for the encoded non-
2 realtime content is further based on a maximum bit rate anticipated for the encoded realtime
3 content.

1 18. (New) The method of claim 16, further comprising:

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2 allocating the bit rate for the encoded non-realtime content among a plurality of
3 pages of non-realtime content.

1 19. (New) The method of claim 14, further comprising:
2 combining slices of encoded realtime content with slices of encoded non-
3 realtime content, and
4 wherein the repacketizing is based on the combined slices of encoded realtime
5 and non-realtime contents.

1 20. (New) A terminal configured to provide a user interface having includes
2 therein realtime and non-realtime contents, comprising:
3 a demodulator operative to receive and demodulate a modulated signal to
4 provide a transport stream;
5 a transport de-multiplexer coupled to the demodulator and operative to receive
6 and process the transport stream to provide a sequence of transport packets re-timestamped to
7 synchronize encoded realtime content and encoded non-realtime content included therein; and
8 at least one video decoder coupled to the transport de-multiplexer and operative
9 to receive and decode the encoded realtime and non-realtime contents to recover the realtime
10 and non-realtime contents for the user interface.